

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 01-2					FOR NSF USE ONLY		
NSF 00-78			01/26/01			NSF PROPOSAL NUMBER	
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)					0114427		
DGE - IGERT FULL PROPOSALS							
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)		FILE LOCATION	
				053599908			
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYMS(S)			
936001786							
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE			ADDRESS OF Awardee ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE				
Oregon State University			Oregon State University				
AWARDEE ORGANIZATION CODE (IF KNOWN)			312 Kerr Administration				
0032102000			Corvallis, OR. 973312140				
NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE			ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE				
PERFORMING ORGANIZATION CODE (IF KNOWN)							
IS Awardee ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions) <input type="checkbox"/> FOR-PROFIT ORGANIZATION <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> MINORITY BUSINESS <input type="checkbox"/> WOMAN-OWNED BUSINESS							
TITLE OF PROPOSED PROJECT IGERT - Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes							
REQUESTED AMOUNT \$ 2,662,000		PROPOSED DURATION (1-60 MONTHS) 60 months		REQUESTED STARTING DATE 10/01/01		SHOW RELATED PREPROPOSAL NO., IF APPLICABLE 0092363	
CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW							
<input type="checkbox"/> BEGINNING INVESTIGATOR (GPG I.A) <input type="checkbox"/> VERTEBRATE ANIMALS (GPG II.C.11) IACUC App. Date _____ <input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C) <input type="checkbox"/> HUMAN SUBJECTS (GPG II.C.11) Exemption Subsection _____ or IRB App. Date _____ <input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION (GPG I.B, II.C.6) <input type="checkbox"/> NATIONAL ENVIRONMENTAL POLICY ACT (GPG II.C.9) <input checked="" type="checkbox"/> INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED NOR SWED UK <input type="checkbox"/> HISTORIC PLACES (GPG II.C.9) <input type="checkbox"/> SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.C.11) <input checked="" type="checkbox"/> HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.E.1)							
PI/PD DEPARTMENT College of Oceanic & Atmospheric Science			PI/PD POSTAL ADDRESS 104 Ocean Admin Building				
PI/PD FAX NUMBER 541-737-2064			Corvallis, OR 973315503 United States				
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address			
PI/PD NAME Martin R Fisk	PhD	1978	541-737-5208	mfisk@coas.oregonstate.edu			
CO-PI/PD Peter J Bottomley	PhD	1975	541-737-1844	Peter.Bottomley@orst.edu			
CO-PI/PD Stephen J Giovannoni	PhD	1984	541-737-1835	steve.giovannoni@orst.edu			
CO-PI/PD Anna-Louise Reysenbach	PhD	1987	503-725-3864	reysenbacha@pdx.edu			
CO-PI/PD Lewis Semprini	Ph.D.	1986	541-737-6895	lewis.semprini@orst.edu			

CERTIFICATION PAGE

Certification for Principal Investigators and Co-Principal Investigators:

I certify to the best of my knowledge that:

- (1) the statements herein (excluding scientific hypotheses and scientific opinions) are true and complete, and
 (2) the text and graphics herein as well as any accompanying publications or other documents, unless otherwise indicated, are the original work of the signatories or individuals working under their supervision. I agree to accept responsibility for the scientific conduct of the project and to provide the required progress reports if an award is made as a result of this proposal.

I understand that the willful provision of false information or concealing a material fact in this proposal or any other communication submitted to NSF is a criminal offense (U.S. Code, Title 18, Section 1001).

Name (Typed)	Signature	Social Security No.*	Date
PI/PD Martin R Fisk		*ON FAST-LANE SUBMISSIONS* SSNs are confidential and are not displayed	
Co-PI/PD Peter J Bottomley			
Co-PI/PD Stephen J Giovannoni			
Co-PI/PD Anna-Louise Reysenbach			
Co-PI/PD Lewis Semprini			

Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the individual applicant or the authorized official of the applicant institution is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, and lobbying activities (see below), as set forth in Grant Proposal Guide (GPG), NSF 01-2. Willful provision of false information in this application and its supporting documents or in reports required under an ensuring award is a criminal offense (U. S. Code, Title 18, Section 1001).

In addition, if the applicant institution employs more than fifty persons, the authorized official of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of Grant Policy Manual Section 510; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflict which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

Debarment Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes ☐

No ☒

Certification Regarding Lobbying

This certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE		SIGNATURE	DATE
NAME/TITLE (TYPED) Peggy S. Lowry, Dir. Sponsored Programs			01/26/01
TELEPHONE NUMBER 541-737-3437	ELECTRONIC MAIL ADDRESS sponsored.programs@orst.edu	FAX NUMBER 541-737-3093	

*SUBMISSION OF SOCIAL SECURITY NUMBERS IS VOLUNTARY AND WILL NOT AFFECT THE ORGANIZATION'S ELIGIBILITY FOR AN AWARD. HOWEVER, THEY ARE AN INTEGRAL PART OF THE INFORMATION SYSTEM AND ASSIST IN PROCESSING THE PROPOSAL. SSN SOLICITED UNDER NSF ACT OF 1950, AS AMENDED.

PROJECT SUMMARY

IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical, and Geochemical Processes

Director: Martin Fisk

Lead Institution: Oregon State University

Participating Universities:

Oregon State University

University of Bergen, Bergen, NO

Göteborg University, Göteborg, SW

Portland State University

University of Bristol, Bristol, UK

Participating National Laboratories

Department of Energy (DOE) Pacific Northwest National Laboratory

DOE Idaho National Engineering and Environmental Laboratory

DOE Oakridge National Laboratory

NASA Jet Propulsion Laboratory

The biosphere is usually thought of as plants and animals near the Earth's surface, but the Earth's habitable zone extends to depths of hundreds or thousands of meters. The Earth's subsurface biosphere is composed mostly of bacteria, and collectively these bacteria may have a mass equivalent to that of all life in the near-surface biosphere. The emerging, interdisciplinary study of the subsurface biosphere could solve major environmental, agricultural, and industrial problems, and lead to products that will improve human health and prosperity. The key to success in this field will be to understand the links between subsurface microbiology and Earth's physical and chemical environment and processes. Scientists with this understanding will solve problems such as:

- transforming toxic waste into harmless byproducts,
- providing safer drinking water,
- increasing mining efficiency,
- increasing flow of oil from wells,
- confining nuclear waste in storage facilities,
- improving soil,
- reutilization of animal and human wastes, and
- understanding the impact of the subsurface biosphere on our planet.

To prepare graduate students for these challenges we will coordinate the mentoring of students by internationally recognized engineers, microbiologists, geologists, oceanographers, geochemists, soil scientists, and hydrologists. Students' preparation will be broadened with a new subsurface biosphere integrated minor with five related components. Some of these are: a group process training effort, courses that link microbial with physical and chemical processes from molecular to global scales, and international and national internships, field programs, and symposia. Ethical and cultural issues related to subsurface science, bioengineering, and the environment will be included in courses, seminars and workshops.

PROPOSAL NO 0114427	INSTITUTION Oregon State University		PLEASE RETURN BY 09/24/03		
PRINCIPAL INVESTIGATOR Fisk, Martin R.		NSF PROGRAM IGERT FULL PROPOSALS			
PROPOSAL TITLE IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes					
	REVIEWER	NSF I.D GENDER DISCIPLINE PIN	DATE SENT RETURNED	REVIEWER (R) PANELIST (P) BOTH (B)	REVIEWED (R) NOT REVIEWED (N) COI (C) LATE (L)
1	Dr. Elizabeth Adkins-Regan, Department of Psychology Uris Hall Cornell University Ithaca, NY 14853-7601 er12@cornell.edu	000103102 Female Psychology Biological Aspects *****	03/19/01	P	P
2	Professor Linda J. Allen, Department of Mathematics and Statistics Texas Tech University Lubbock, TX 79409-1042 lallen@math.ttu.edu	ZA0753392 Female Mathematics *****	03/19/01	P	P
3	Dr. Michael F. Allen, Center for Conservation Biology University of California-Riverside Riverside, CA 92521-0101 michael.allen@ucr.edu	PN0326366 Male Ecology *****	03/19/01 03/17/01	B	R Very Good
4	Dr. Dawn R. Applegate, Director, Technology Development Advanced Tissue Sciences, Inc. 10933 N. Torrey Pines Road LaJolla, CA 92037- dawn.applegate@advancedtissue.com	ZS0793452 Female Other Sciences NEC *****	03/19/01	P	P
5	Dr. John Beatty, Dept. of Ecology, Evolution & Behavior University of Minnesota 100 Ecology Bldg. St. Paul, MN 55108- beatty@tc.umn.edu	YY0711484 Male History *****	03/19/01	P	P
6	Dr. May R. Berenbaum, Department of Entomology U of Ill Urbana-Champaign 505 South Goodwin Avenue 320 Morrill Hall Urbana, IL 61801-3795 maybe@uiuc.edu	BY0307796 Female Life Science Biological *****	03/19/01	P	P

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7	Dr. Terry M. Bricker, Department of Biological Sciences Louisiana St Univ Baton Rouge Baton Rouge, LA 70803- Btbric@lsu.edu	IY0558853 Male Life Science Biological *****	03/19/01	P	P
8	Dr. Christine Bruhn, Food Science and Technology University of California-Davis Davis, CA 95616-8671 cmb Bruhn@ucdavis.edu	YR0781947 Female Other Sciences NEC *****	03/19/01	P	P
9	Prof. Stephen R. Carpenter, Center for Limnology University of Wisconsin, Madison 680 North Park Street Madison, WI 53706-1492 srcarpen@facstaff.wisc.edu	HR0206706 Male Ecology *****	03/19/01	P	P
10	Dr. Maarten J. Chrispeels, Dept of Biology Univ. of California - San Diego La Jolla, CA 92093-0116 mchrispeels@ucsd.edu	000003358 Male Life Science Biological *****	03/19/01	P	P
11	Dr. Lenore S. Clesceri, Clesceri Associates Ltd. 5592 Lake Shore Drive Bolton Landing, NY 12814- clescerl@att.net	OR0127842 Female Life Science Biological *****	03/19/01 03/14/01	1	R Very Good
12	Dr. Anne E. Condon, The Department of Computer Science University of British Columbia 2366 Main Mall Vancouver CA condon@cs.ubc.ca	XP0790755 Female Computer Science & Engineering *****	03/19/01	P	P

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13 Dr. Douglas R. Cook, Department of Plant Pathology Hutchinson Hall, Rm 348, One Shields ave University of California-Davis Davis, CA 95616-8680 drcook@ucdavis.edu	XS0705478 Male Life Science Biological *****	03/19/01	P	P	
14 Professor Ricardo Cortez, Department of Mathematics Tulane University #424 6823 St. Charles St. New Orleans, LA 70118- cortez@math.tulane.edu	XG0784273 Male Mathematics *****	03/19/01	P	P	
15 Dr. Steven M. Cramer, Department of Chemical Engineering Rensselaer Polytechnic Institute 121 Ricketts Bldg Troy, NY 12180-3590 crames@rpi.edu	HX0570062 Male Life Science Biological *****	03/19/01	P	P	
16 Dr. Robert C. Dean Jr., Synergy Innovations, Inc. 10 Water Street, Room 405 PO Box 798 Lebanon, NH 03766- RCD@Synnovations.com	WG0779759 Male Engineering-Mechanical *****	03/19/01	P	P	
17 Dr. Mark W. Denny, Hopkins Marine Station Stanford University Pacific Grove, CA 93950- mwdenny@leland.stanford.edu	BW0324721 Male Biological Oceanography *****	03/19/01	P	P	
18 Dr. John F. Doebley, Department of Genetics University of Wisconsin 445 Henry Mall Madison, WI 53706- jdoebley@facstaff.wisc.edu	YW0318912 Male Life Science Biological *****	03/19/01	P	P	

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19 Dr. Robert L. Dorit, Dept of Biological Sciences Smith College Clark Science Center Northampton, MA 01063- rdorit@science.smith.edu	GW0524127 Male Life Science Biological *****	03/19/01	P	P	
20 Dr. Louie Echols, Director, Sea Grant Program University of Washington 3716 Brooklyn Avenue, NE Seattle, WA 98105-6716 echols@u.washington.edu	UA0795416 Male Life Sciences NEC *****	03/19/01	P	P	
21 Dr. Katherine C. Ewel, Institute of Pacific Islands Forestry USDA Forest Service 1151 Punchbowl St., Rm. 323 Honolulu, HI 96813- kewel@gte.net	PT0118501 Female Life Science Biological *****	03/19/01	P	P	
22 Dr. Mark Fiege, Department of History Colorado State University Fort Collins, CO 80523- MFiege@vines.colostate.edu	UB0795568 Male History *****	03/19/01	P	P	
23 Dr. Brian K. Follett, Office of the President University of Warwick Coventry CV4 7AL UK	000102816 Male Life Science Biological *****	03/19/01	P	P	
24 Dr. Theresa Gaasterland, Laboratory of Computational Genomics Rockefeller University 1230 York Avenue New York, NY 10021-6399 gaasterland@rockefeller.edu	TH0791817 Female Other Sciences NEC *****	03/19/01	P	P	

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25	Dr. Olivier Gascuel, LIRMM 161 rue Ada 39392 Montpellier FR gascuel@lirmm.fr	TD0795572 Male Other Sciences NEC *****	03/19/01	P	P
26	Dr. Richard J. Goldstein, Department of Mechanical Engineering University of Minnesota 125 Mechanical Engineering Building Minneapolis, MN 55455-	000106407 Male Engineering-Mechanical *****	03/19/01	P	P
27	Dr. Sheila A. Grant, Center for Biomedical Engineering Michigan Technological University 1400 Townsend Drive Houghton, MI 49931- sagrnt@mtu.edu	TH0776509 Female Other Sciences NEC *****	03/19/01	P	P
28	Professor Daniel Gusfield, Department of Computer Science UC Davis 2063 Engineering II Davis, CA 95616- gusfield@cs.ucdavis.edu	WV0196023 Male Computer Science & Engineering *****	03/19/01	P	P
29	Dr. Luanne Hall-Stoodley, Center for Biofilm Engineering Montana State University 366 EPS Building Bozeman, MT 59717- luanne_s@erc.montana.edu	SA0795234 Unknown Engineering-Chemical *****	03/19/01	B	P
30	Dr. Daniel A. Hammer, Department of Bioengineering University of Pennsylvania 120 Hayden Hall 3320 Smith Walk Philadelphia, PA 19104- hammer@seas.upenn.edu	SS0737350 Male Engineering-Chemical *****	03/19/01	P	P

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31	Dr. Mary E. Harrington, Department of Psychology Smith College Clark Science Center Northampton, MA 01063- mharring@smith.edu	BS0532292 Female Psychology Biological Aspects *****	03/19/01	P	P
32	Dr. Chien Ho, Department of Biological Sciences Carnegie-Mellon University 4400 Fifth Avenue Pittsburgh, PA 15213-3890 chienho+@andrew.cmu.edu	RS0602322 Male Life Science Biological *****	03/19/01	P	P
33	Dr. Frank C. Hoppensteadt, Department of Mathematics Arizona State University Tempe, AZ 85287-7606 fchoppen@asu.edu	000105999 Male Mathematics *****	03/19/01	P	P
34	Dr. Anthony H. C. Huang, Department of Botany & Plant Sciences University of California Riverside, CA 92521-0124 anthony.huang@ucr.edu	PS0519667 Male Life Science Biological *****	03/19/01	P	P
35	Dr. William P. Inskeep, Department of Land Resources Montana State University Leon Johnson Hall Bozeman, MT 59717- binskeep@montana.edu	LR0595754 Male Geological Sciences *****	03/19/01	P	P
36	Dr. Karen Kainer, Center for Latin American Studies-TCD University of Florida Grinter Gainesville, FL 32611- kkainer@latam.ufl.edu	PZ0789568 Female Environmental Sciences *****	03/19/01	P	P

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37	Dr. Roger D. Kamm, Department of Mechanical Engineering MIT Room 3-260 77 Massachusetts Ave Cambridge, MA 02139- rdkamm@mit.edu	IZ0180638 Male Engineering-Mechanical *****	03/19/01	P	P
38	Dr. Peter M. Kareiva, National Marine Fisheries Service 2725 Montlake Blvd. East Seattle, WA 98112- pkareiva@tnc.org	EP0516008 Male Environmental Biology *****	03/19/01	P	P
39	Dr. William S. Kisaalita, Biological & Agricultural Engineering Driftwiew Engineering Center University of Georgia Athens, GA 30602- williamk@bae.uga.edu	PM0742511 Male Engineering-Chemical *****	03/19/01	P	P
40	Professor Nancy J. Kopell, Department of Mathematics Boston University 111 Cummington Street Boston, MA 02215-1789 nk@bu.edu	CP0599813 Female Mathematics *****	03/19/01	P	P
41	Professor Martin E. Kreitman, Department of Ecology & Evolution University of Chicago 1101 East 57th Street Chicago, IL 60637- mkre@midway.uchicago.edu	BP0314533 Male Life Science Biological *****	03/19/01	P	P
42	Dr. Stephen M. Krone, Department of Mathematics University of Idaho Moscow, ID 83844-1103 krone@uidaho.edu	PH0768870 Male Other Sciences NEC *****	03/19/01	P	P

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43	Dr. Abraham P. Lee, BioFlips/Microflumes Defense Advanced Research Projects Agenc Microsystems Techynology Office 3701 North Fairfax Drive Arlington, VA 22209-1714 aplee@darpa.mil	PP0795814 Male Life Science Biological *****	03/19/01	P	P
44	Professor Simon A. Levin, Dept. of Ecology & Evolutionary Biology 203 Eno Hall Princeton University Princeton, NJ 08544-1003 slevin@eno.princeton.edu	000106358 Male Ecology *****	03/19/01	P	P
45	Professor James C. Liao, Department of Chemical Engineering University of California Los Angeles 5531 Boetler Hall Los Angeles, CA 90095-1592 liaoj@ucla.edu	YO0608450 Male Engineering-Chemical *****	03/19/01	P	P
46	Dr. Elizabeth M. Lord, Botany and Plant Sciences University of California-Riverside Riverside, CA 92521-0124 elizabeth.lord@ucr.edu	VA0204784 Female Life Science Biological *****	03/19/01	P	P
47	Professor Sharon R. Lubkin, Biomathematics Program North Carolina State University at Raleigh Box 8203 Raleigh, NC 27695-8203 lubkin@eos.ncsu.edu	PH0774331 Female Mathematics *****	03/19/01	P	P
48	Professor Michael Lynch, Department of Biology Indiana University Bloomington Jordan Hall Bloomington, IN 47405- mlynch@bio.indiana.edu	NA0171023 Male Life Science Biological *****	03/19/01	P	P

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49	Dr. Lawrence M. Mayer, Darling Marine Center University of Maine 193 Clarks Cove Rd. Walpole, ME 04573- lmayer@maine.edu	AN0562032 Male Life Science Biological *****	03/19/01	P	P	
50	Dr. Bonnie J. McCay, Human Ecology Rutgers Univ New Brunswick 55 Dudley Road New Brunswick, NJ 08901- mccay@aesop.rutgers.edu	YB0139635 Female Anthropology *****	03/19/01	P	P	
51	Dr. William K. Michener, LTER Network Office University of New Mexico Albuquerque, NM 87131- wmichene@lternet.edu	NM0789107 Male Ecology *****	03/19/01 03/16/01	B	R	Good
52	Professor Alexander Mogilner, Department of Mathematics University of California, Davis Davis, CA 95616- mogilner@math.ucdavis.edu	NP0762583 Male Mathematics *****	03/19/01	P	P	
53	Dr. Carlo D. Montemagno, Dept of Agriculture & Bio Engineering Cornell University Riley-Robb Ithaca, NY 14853-5701 cdm11@cornell.edu	NR0753282 Male Geological Sciences *****	03/19/01	P	P	
54	Dr. C. Jerry Nelson, Department of Agronomy University of Missouri-Columbia 210 Waters Hall Columbia, MO 65211- nelsoncj@missouri.edu	MR0795690 Male Life Science Biological *****	03/19/01	P	P	

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55	Dr. Emil M. Orozco Jr., Dupont Agricultural Enterprise Barley Mill Plaza, P16-2124 P.O. Box 80016 Wilmington, DE 19880-0016 emil.m.orozco@usa.dupont.com	TL0559396 Male Life Science Biological *****	03/19/01	P	P
56	Professor Hans G. Othmer, School of Mathematics University of Minnesota-Twin Cities 127 Vincent Hall Minneapolis, MN 55455- othmer@math.umn.edu	WL0544261 Male Mathematics *****	03/19/01	P	P
57	Dr. Valerie J. Paul, Smithsonian Marine Station 701 Seaway Drive Fort Pierce, FL 34949- paul@sms.si.edu	KK0533514 Female Biological Oceanography *****	03/19/01	P	P
58	Dean Thomas W. Peterson, College of Engineering & Mines University of Arizona Building 72 Room 100 Tucson, AZ 85721- peterson@erc.arizona.edu	GE0162659 Male Engineering-Chemical *****	03/19/01	P	P
59	Dr. David Pimentel, Department of Entomology 5126 Comstock Hall Cornell University Ithaca, NY 14853-0901 dp18@cornell.edu	000013959 Male Ecology *****	03/19/01	P	P
60	Dr. Georg Pohnert, Max Planck Institut fur chemische Okolog Carl-Zeiss-Promenade 10 07765 Jena GE pohnert@ice.mpg.de	KU0795412 Male Chemistry *****	03/19/01	P	P

PROPOSAL NO 0114427	INSTITUTION Oregon State University		PLEASE RETURN BY 09/24/03		
PRINCIPAL INVESTIGATOR Fisk, Martin R.		NSF PROGRAM IGERT FULL PROPOSALS			
PROPOSAL TITLE IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes					
	REVIEWER	NSF I.D GENDER DISCIPLINE PIN	DATE SENT RETURNED	REVIEWER (R) PANELIST (P) BOTH (B)	REVIEWED (R) NOT REVIEWED (N) COI (C) LATE (L)
61	Dr. Curtis J. Richardson, Duke Wetland Center Duke University Nicholas School of the Environment Durham, NC 27708- curtr@duke.edu	XG0114047 Male Ecology *****	03/19/01	P	P
62	Dr. Roger W. Roeske, Department of Biochemistry Indiana Univ. School of Medicine 635 Barnhill Drive Indianapolis, IN 46202- rroeske@iupui.edu	IG0189865 Male Engineering *****	03/19/01	P	P
63	Dr. Barney A. Schlinger, Dept. Physiological Sciences University of California-Los Angeles Los Angeles, CA 90095-1527 schlinge@lifesci.ucla.edu	HQ0715583 Male Life Science Biological *****	03/19/01	P	P
64	Dr. Steven J. Schwartz, Department of Food Science and Technology Ohio State University 2001 Fyffe Court Columbus, OH 43210-1096	HH0755464 Male Other Sciences NEC *****	03/19/01	P	P
65	Dr. Lori A. Setton, Department of Biomedical Engineering Duke University 136 Hudson Engineering Center, Box 90281 Durham, NC 27708-0281 setton@duke.edu	HA0746446 Female Engineering NEC *****	03/19/01	P	P
66	Dr. Jonathan H. Sharp, Graduate College of Marine Studies University of Delaware 700 Pilottown Road Lewes, DE 19958- jsharp@udel.edu	YH0504710 Male Life Science Biological *****	03/19/01	P	P

PROPOSAL NO 0114427	INSTITUTION Oregon State University		PLEASE RETURN BY 09/24/03			
PRINCIPAL INVESTIGATOR Fisk, Martin R.		NSF PROGRAM IGERT FULL PROPOSALS				
PROPOSAL TITLE IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes						
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67	Dr. Mark S. Shephard, Scientific Computation Research Center Rensselaer Polytechnic Institute 110 Eighth Street Troy, NY 12180-3522 shephard@scorec.rpi.edu	BH0502481 Male Engineering-Civil *****	03/19/01	P	P	
68	Dr. Sharon P. Shoemaker, Department of Food Science and Technology University of California, Davis Davis, CA 95616- spshoemaker@ucdavis.edu	HH0544030 Female Engineering-Chemical *****	03/19/01	P	P	
69	Dr. Donald I. Siegel, Syracuse University 204 Heroy Lab Syracuse, NY 13244-1200 disiegel@syr.edu	HS0789767 Male Environmental Sciences *****	03/19/01	P	P	
70	Dr. Donald I. Siegel, Department of Earth Sciences Syracuse University 307 Heroy Geology Laboratory Syracuse, NY 13244-1070 disiegel@mailbox.syr.edu	SH0565346 Male Geological Sciences *****	03/19/01	P	P	
71	Dr. Gail M. Simmons, School of Science The College of New Jersey P.O. Box 7718 Holman Hall Ewing, NJ 08628-0718 simmons@tcnj.edu	VH0570170 Female Life Science Biological *****	03/19/01 03/18/01	B	R	Very Good
72	Dr. William K. Smith, Department of Biology Wake Forest University Winston-Salem, NC 27109-7325 smithwk@wfu.edu	DH0164322 Male Life Science Biological *****	03/19/01	P	P	

PROPOSAL NO 0114427	INSTITUTION Oregon State University		PLEASE RETURN BY 09/24/03		
PRINCIPAL INVESTIGATOR Fisk, Martin R.		NSF PROGRAM IGERT FULL PROPOSALS			
PROPOSAL TITLE IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes					
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73 Professor Garrison Sposito, Civil & Environmental Engineering University of California - Berkeley 631 Davis Hall Berkeley, CA 94720- sposito@ce.berkeley.edu	HU0722120 Male Environmental NEC *****	03/19/01	P	P	
74 Dr. James T. Staley, Department of Microbiology University of Washington Box 357242 Seattle, WA 98195- jstaley@u.washington.edu	000019896 Male Life Science Biological *****	03/19/01 04/11/01	P	R	Very Good
75 Dr. Peter D. Steinberg, School of Biological Science University of New South Wales P.O. Box 1 Kensington, NSW 2033 AS p.steinberg@unsw.edu.au	EH0533488 Male Biological Oceanography *****	03/19/01	P	P	
76 Dr. D Tarlock, William Richardson School of Law University of Hawaii Honolulu Community 2515 Dole Street Honolulu, HI 96822- tarlock@hawaii.edu	GS0795570 Male Law *****	03/19/01	P	P	
77 Dr. Nicholas J. Turro, Department of Chemistry Columbia University 3000 Broadway, Mail Code 3119 New York, NY 10027- turro@chem.columbia.edu	000013596 Male Chemistry *****	03/19/01	P	P	
78 Dr. Albert J. Valocchi, Civil & Environmental Engineering University of Illinois 205 N. Mathews, MC-250 Urbana, IL 61801-2352 valocchi@uiuc.edu	PE0500295 Male Geological Sciences *****	03/19/01	P	P	

PROPOSAL NO 0114427	INSTITUTION Oregon State University		PLEASE RETURN BY 09/24/03		
PRINCIPAL INVESTIGATOR Fisk, Martin R.		NSF PROGRAM IGERT FULL PROPOSALS			
PROPOSAL TITLE IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes					
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79	Dr. Stephen G. Weller, Ecology & Evolutionary Biology U of Cal Irvine 321 Steinhaus Irvine, CA 92697-2525 SGWELLER@UCI.EDU	HL0159570 Male Ecology *****	03/19/01	P	P
80	Dr. Holly A. Wichman, Department of Biological Sciences University of Idaho Moscow, ID 83844- hwichman@uidaho.edu	WD0605996 Female Life Science Biological *****	03/19/01	P	P
81	Dr. Eleanore T. Wurtzel, Biological Sciences Lehman College CUNY 250 Bedford Park Blvd. West Bronx, NY 10468- etwlc@cunyvm.cuny.edu	DT0764858 Female Life Science Biological *****	03/19/01	P	P
82	Dr. F. Eugene Yates, Department of Medicine/UCLA Physiological Monitoring Unit Ste 330 1950 Sawtelle Blvd. Los Angeles, CA 90025-7014 gyates@ix.netcom.com	UB0519252 Male Life Science Biological *****	03/19/01	P	P

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Panel Summary Jacket Copy

Proposal:0114427

PI Name:Fisk, Martin R.

PANEL: IGERTFULLA
INSTITUTION: Oregon State University
NSF PROGRAM: Integrative Graduate Education and Research
Training Program, IGERT Full Proposals
PRINCIPAL INVESTIGATOR:
PROPOSAL TITLE: IGERT: Earth's Subsurface Biosphere: Coupling of
Microbial, Geophysical and Geochemical Processes

PANEL SUMMARY:

Strengths:

The proposal describes research and research opportunities in a critical area of investigation with regard to national and global concerns i.e. water supply.

Development of courses to stimulate molecular to global thinking (Global Biogeochemistry and Subsurface Biosphere)..

Challenging research opportunities with good potential for publications

Good participation of national and international universities, national laboratories and industry.
Integrated minor mechanism.

Weaknesses:

The role of Portland State University is not well defined. The logistics of course and research work for Portland students needs definition. The administrative structure needs to show the role of PSU in the overall project.

Need to provide opportunities for dissemination of research results.

Program assessment criteria need to be established.

Three year time period for the dissertation is inadequate.

Problem with overlay of interdisciplinary skills on traditional program.

Reason for Panel Ranking:

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Panel Summary Jacket Copy

Proposal:0114427

PI Name:Fisk, Martin R.

The panel recommended this application for funding but the administrative structure between PSU and OSU needs to be clarified.

PANEL RECOMMENDATION:

PANEL RECOMMENDATION KEY:

DNF:Do Not Fund, FIP:Fund If Possible, F:Fund

APPROVED BY:

NATIONAL SCIENCE FOUNDATION
Review (Jacket Copy)

Proposal:0114427

PI Name:Fisk, Martin R.

Title:IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes

Institution:Oregon State University

NSF Program:Integrative Graduate Education and Research Training Program, IGERT Full Proposals

Principal Investigator:Fisk, Martin R.

Received Date:03/17/01

Rating:Very Good

Review:

What is the intellectual merit of the proposed activity?

This proposal develops a graduate training program that takes on a huge newly developing area of science, the earth's subsurface. This area is so new, that it may not even be viewed as interdisciplinary, but the needs and approaches are so radically different as to comprise an interdisciplinary perspective. Students will all have a disciplinary background but will gain an interdisciplinary perspective. The research themes focus around coupling microbial dynamics with chemical and physical processes in the deep layers. Four examples are focused upon, bioremediation, linked bio-geo-chem processes, newly developing microbiology focusing on organisms that traditionally are not "culturable"- using a genomics perspective, and gas hydrates. Courses within the various "disciplines" are emphasized, but with the addition of "Global biogeochemistry, and Subsurface Biosphere. There are also group process training, 4 lab workshops, a skills and ethics course, a bunch of seminars/retreats/workshops, and an internship. Support is provided for only 1 or 2 years with the expectation that students will be picked up by individual labs or departments. The program organization is similar to most IGERT proposals- with a lead PI and almost every relevant faculty member.

Positive attributes. This is a different "interdisciplinary" overlay in that the members are biologists and chemical/physical processes people. While this is a rather narrow focus for "interdisciplinary", the area is likely a huge one with a need for some radically different approaches for study. The research topics are cutting edge with some exciting new techniques and approaches.

Concerns. The workshops and short courses are solid, may be rather much? I see little evidence that the students, beyond the coursework, will actually be forced to undertake interdisciplinary activities or that the faculty will be expected to coordinate research activities. Further, as noted, the program emphasizes existing courses, and existing core disciplines. I am concerned that there is little previous real interaction or integration among faculty. For example, I found few papers or grants among 2 or more faculty. Is this truly interactive, and do the students get a sense that interdisciplinary research is real, or simply talk occasionally and then go back to the

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Proposal:0114427

PI Name:Fisk, Martin R.

individual labs and individually-based programs. I am also concerned with the breadth of material. Is a focus on the subsurface issue alone too limited and narrow of a focus for students emerging from the program? I can't answer this; I think that the approach is worth a trial but express caution that the students must come out and also be aware of the broader range of issues and problems- in other words, be a truly interdisciplinary scientist- not a narrow person with a different narrowness. What is the time frame of the internship? Support is limited to one or two years. I am concerned that thrusting students back into the general pool will result in the old ways of discipline focus for assistantships and activities will simply take back over.

What are the broader impacts of the proposed activity?

This program would train students that are capable of crossing disciplinary lines that currently restrict assessment and management of our natural resources. It would also integrate the University with the the federal labs and other organizations at a level not previously undertaken. The topic also has important implications for application.

Integration of Research and Education. Appears solid.
Integrating Diversity. Appears solid

Summary Statement

This proposal is an interesting effort to study a novel area that will require an interdisciplinary approach linking microbiologists, earth scientists, and engineers. However, I am concerned that this is not broadly interdisciplinary, but simply creating a new discipline?

Reviewer:

Allen, Michael F.
Center for Conservation Biology

Email:michael.allen@ucr.edu

Suggested Reviewers:

None

Conflict of Interest:

None

NATIONAL SCIENCE FOUNDATION
Review (Jacket Copy)

Proposal:0114427

PI Name:Fisk, Martin R.

Title:IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes

Institution:Oregon State University

NSF Program:Integrative Graduate Education and Research Training Program, IGERT Full Proposals

Principal Investigator:Fisk, Martin R.

Received Date:03/14/01

Rating:Very Good

Review:

What is the intellectual merit of the proposed activity?

This application is submitted by Oregon State University in Corvallis. There are 5 participating universities and 4 participating national laboratories. There is an EPA Research Center that has been awarded to OSU in conjunction with Stanford as the Western Regional Hazardous Substance Research Center for Developing in situ Processes for VOC Remediation in Groundwater and Soils which will be funded for the same interim as this IGERT application if funded. The proposal describes research and research opportunities in a critical area of investigation with regard to national and global concerns i.e. drinking water supply and the role of microorganisms in the subsurface. The work described illustrates the institution's track record as a leader in subsurface investigation. Collaboration between science and engineering as well as between various areas of science has resulted in the ability to ask relevant questions involving the subsurface biosphere. This is an area of investigation that has received significant DOE support from their subsurface program since the realization less than 2 decades ago that the subsurface was not the sterile environment that it was assumed to be. This IGERT application offers challenging research opportunities utilizing modern approaches in science and engineering such as molecular tools for organism identification as well as tagging, stable isotope analysis for source identification, mathematical modeling, etc. in an interdisciplinary context. The description of the project utilizing a light gene modified *Pseudomonas fluorescens* for investigating the effect of microbial growth in soils on fluid transport in soils is an illustration of one of several examples given - all of which are solid research topics. The program is constructed to put the major academic discipline first and the development of linkages and global perspectives as important additions to the doctorate program.

What are the broader impacts of the proposed activity?

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PI Name:Fisk, Martin R.

The devices spelled out in this application for the achievement of multi-disciplinarity and collaboration is partially in place and will be augmented by specific additions for the IGERT. What is in place is a mechanism for the introduction of interdisciplinary programs via the integrated minor. This mechanism will be used and augmented by 1) the development of 2 new courses and by requirements for specific courses to stimulate molecular to global thinking 2) participation in a course on problem solving (Group Process Training) to develop communication, collaborative and compromise skills. 3) laboratory workshops (separate from the doctoral laboratory work) 4) a course in scientific skills (grantsmanship etc.) and ethics 5) biweekly seminars 6) an internship at an appropriate off-campus site (national lab, foreign university, industry field site) a long list is given of these 7) a yearly retreat for discussion of results of the research of the IGERT trainees and planning and 8) participation at a professional national or international meeting.

The program is well-structured for the objective of interdisciplinary teaching and learning as well as for developing networks and partnerships. Plans for recruitment, retention, information transfer and community involvement are acceptable. A project assessment plan is given.

Summary Statement

The research theme is focused and the team is well-qualified for this work. This is an area of investigation that has benefited from interactive work between engineering and science- especially geology and microbiology. There are more questions remaining to be answered, than have been solved however. With the threatened condition of groundwater drinking water supplies, this work and the people trained in this work should be productive in the solution of water supply problems.

Reviewer:

Clesceri, Lenore S.

Email:clescerl@att.net

Suggested Reviewers:

None

Conflict of Interest:

None

NATIONAL SCIENCE FOUNDATION
Review (Jacket Copy)

Proposal:0114427

PI Name:Fisk, Martin R.

Title:IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes

Institution:Oregon State University

NSF Program:Integrative Graduate Education and Research Training Program, IGERT Full Proposals

Principal Investigator:Fisk, Martin R.

Received Date:03/16/01

Rating:Good

Review:

What is the intellectual merit of the proposed activity?

À Importance and coherence of the multidisciplinary research theme, including effectiveness as an intellectual focus for all participants.

- o Positives-The focus on coupling microbial, geophysical, and geochemical processes in the subsurface biosphere is a broad multidisciplinary topic that can encompass all participants.

- o Negatives-The topic is potentially so broad (bioremediation to reutilization of animal waste to increasing flow of oil from wells) that it may not serve as the most effective intellectual focus.

À Quality of the proposed major research efforts and their appropriateness to the multidisciplinary research theme.

- o Positives-A number of important collaborative studies are underway in the four focal areas: bioremediation, the vadose zone subsurface biosphere, life in the lithosphere, and methane hydrates.

- o Negatives-Collectively, the research efforts qualify as multi-disciplinary. However, many of the research examples presented appear to be fairly restricted in scope, bringing into question how this might be maximally beneficial to students.

À Quality and innovation in the planned education and training activities, including provisions for developing professional and personal elements such as communication, teamwork, leadership, and instruction in ethics and the responsible conduct of research.

- o Positives-The education and training activities include three new multidisciplinary courses; a year-long team research project; numerous 1-2 days field and laboratory workshops (many of which focus on developing important skills-a strong aspect of this proposal); a scientific skills and ethics course; biweekly seminars; academic, industrial, or foreign internship; a yearly retreat; and participation at a national or international symposium or workshop.

- o Negatives-Interaction and coordination among the two universities warranted more discussion given the large number of planned educational activities.

À Effectiveness of career development opportunities, such as may be provided by internships in the international, industrial, or other settings.

- o Positives-Students would be afforded a number of career development opportunities

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PI Name:Fisk, Martin R.

via academic, industrial and international internships.

- o Negatives-It is not clear how or to what extent students would be encouraged to pursue internships in other disciplines.

À Appropriateness of the formal administrative plan and organizational structure in assuring fair and effective allocation of group resources, including the institution's intellectual commitment to the project.

- o Positives-The institutions have made a strong commitment to the IGERT (> \$870K total). The committee organization structure assures good balance between the two universities.

- o Negatives-The actual makeup of the executive committee (ie the balance between the two schools) was not addressed.

À Effectiveness of the strategy for preparing a diverse, globally-aware, science and engineering workforce, including operational plans for student recruitment and retention.

- o Positives-Plans for recruitment are quite comprehensive and appear to have been effective in the past. The mentorship program is well-defined.

- o Negatives-Joint inter-institutional social activities and other proactive retention measures were not addressed.

À Appropriateness of the plans for assessment of project performance

- o Positives-The annual meeting of the (external) assessment panel is an effective mechanism for assessing project performance.

- o Negatives-Criteria for more routine assessment of project performance are not addressed.

What are the broader impacts of the proposed activity?

À Positives-The project has the potential for training a group of scientists that are much better equipped to deal with complex multidisciplinary subsurface processes.

À Negatives-Other than multidisciplinary courses and workshops, it is not obvious that students will bridge disciplinary barriers in their research.

Summary Statement

The project entails the creation of several multi-disciplinary courses, as well as numerous shorter workshops that will significantly benefit the students. Also, the diverse internship program is especially strong. Support from the universities is exceptionally strong and the program can easily handle the influx of new students. Other than the new courses, many of the "multidisciplinary activities" are not especially innovative and do not guarantee a multidisciplinary perspective.

Collectively, all the research examples encompass many disciplines; however, individually the students will return to individual departments and it is not clear to what extent they will benefit from the multidisciplinary experience. Coordination of activities between the two universities warranted additional discussion. As a minor point, given

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Proposal:0114427

PI Name:Fisk, Martin R.

the prior departmental histories as well as the greatly enhanced work loads, it is unreasonable to assume that students will complete their PhDs in three years.

Reviewer:

Michener, William K.
LTER Network Office

Email:wmichene@lternet.edu

Suggested Reviewers:

None

Conflict of Interest:

None

NATIONAL SCIENCE FOUNDATION
Review (Jacket Copy)

Proposal:0114427

PI Name:Fisk, Martin R.

Title:IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes

Institution:Oregon State University

NSF Program:Integrative Graduate Education and Research Training Program, IGERT Full Proposals

Principal Investigator:Fisk, Martin R.

Received Date:03/18/01

Rating:Very Good

Review:

What is the intellectual merit of the proposed activity?

This IGERT proposal concentrates on the interactions of microbiology, geophysics and geochemistry in shaping the subsurface biosphere. Specifically it proposes to train students to solve problems in detoxification of various wastes, improvement of soil and drinking water, increasing efficiency of mining and oil drilling, and in general understanding of processes ongoing below the planet's surface. Cooperation is planned with Portland State University as well as with several foreign universities and a number of government laboratories. Students may enter the program through various institutions and must complete Ph. D. requirements of that institution; in addition they must complete a graduate minor that includes a year of coursework in the first year, a second year of Group Process Training, a course in ethics, and a biweekly seminar. Students will be required to complete an internship at a lab or field site and participate in retreats and symposia.

The science of this proposal is rather far outside my area of expertise but the questions to be addressed are clearly important ones, which may have immediate impact on environmental issues as well as long-term impact on scientific research in the area of the subsurface biosphere.

Strengths of the Proposal

- 1) Clear need for interdisciplinary training. It is obvious that the science to be addressed requires such training in order to be effective.
- 2) Group Process training. This model, in which second-year students work together on a problem for an entire academic year, is unusual and seems highly promising for teaching both science and the process of scientific collaboration.
- 3) Internship program. The proposed internships seem very strong, and seem likely to provide both good training and career development.
- 4) Strong recruiting program for minorities and women.

Weaknesses of the Proposal

- 1) Confusing inter-university structure. Students will apparently be admitted to either

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PI Name:Fisk, Martin R.

OSU or PSU (and perhaps from foreign universities) but it appears that required coursework is to be performed at OSU. It is unclear how students can participate in the interdisciplinary minor and still fulfill requirements on their home campus. The proposal suggests that use of videoconferencing and other high-speed communications will alleviate this problem; however, this seems to be at odds with such coursework as the Group Process training course, which is one of the highlights of the proposal.

2) Potentially heavy coursework load for students. Students who enter the program must complete all requirements of a Ph. D. program in their discipline PLUS they must take the interdisciplinary minor at OSU PLUS a required internship. The proposal does not clearly delineate how many credit hours students will be devoting to coursework vs. research to complete all requirements, so it seems possible that students will spend excessive amounts of time in the classroom.

What are the broader impacts of the proposed activity?

The proposed training seems likely to have a major impact on availability of scientists to work in industrial or governmental areas of major economic and environmental importance. The program seems less oriented toward academic research as an outcome, although students trained under the program would certainly be qualified for academic posts.

Summary Statement

The proposed research training is in an area of clear need and the training program seems strong. Questions about the organization of the program and the actual course of students through the IGERT in combination with their regular Ph.D. program dampen my enthusiasm somewhat.

Reviewer:

Simmons, Gail M.
School of Science

Email:simmons@tcnj.edu

Suggested Reviewers:

None

Conflict of Interest:

None

NATIONAL SCIENCE FOUNDATION
Review (Jacket Copy)

Proposal:0114427

PI Name:Fisk, Martin R.

Title:IGERT: Earth's Subsurface Biosphere: Coupling of Microbial, Geophysical and Geochemical Processes

Institution:Oregon State University

NSF Program:Integrative Graduate Education and Research Training Program, IGERT Full Proposals

Principal Investigator:Fisk, Martin R.

Received Date:04/11/01

Rating:Very Good

Review:

What is the intellectual merit of the proposed activity?

The focus of this proposal is on the microbial "underworld," that is, the poorly understood microbiota that comprise a substantial proportion of earth's biomass. The diverse and divergent research and training activities proposed fit more or less very well under this broad umbrella. So, I am pleased with the topic that has been selected to bring the various scientists and engineers together along with their students. It is an important subject that should form the nucleus of an exciting interdisciplinary program in research and graduate student training. I believe this potential for this project far outweighs any negative aspects to it. For example, I do believe the PIs' proposal to address diversity issues is strengthened by their acknowledgement that native indians are an excellent local resource BUT most of the efforts involved in recruitment do not involve working within a mentoring system that involves the students before they enter grad school.

What are the broader impacts of the proposed activity?

I believe this is an excellent topic around which to build a program and I am impressed with the scientists and engineers who are participating. I believe that having the two universities poses some complications, but they can be overcome with strong management. I worry somewhat about the huge expanse of topic areas and participation of various national labs at disparate geographic locations. My general concern is that it will be a major challenge to keep the focus. The graduate students will want to part of a team that is doing something new and exciting and this may be lost if the focus is too diffuse. So, please remember the old axiom/acronym: KISS-Keep it simple. Once it is successful, it can be expanded.

Summary Statement

This project recognizes a vastly under-studied but highly important area, the biological underworld as its point of focus. Excellent scientists and engineers are involved. It has the potential to become an exciting IGERT site and therefore, I have ranked it quite highly.

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PI Name:Fisk, Martin R.

My main concern is that this project will need a lot of TLC (not thin layer chromatography, but tender loving care) as it could become too diffuse. Therefore, my recommendation is to start off with the development of the academic program at the two campuses with annual workshops at the governmental lab sites. Then expand as the curriculum and students settle in.

Reviewer:

Staley, James T.
Department of Microbiology

Email:jtstaley@u.washington.edu

Suggested Reviewers:

None

Conflict of Interest:

None